



SEA WARDEN

A COMPREHENSIVE SYSTEM TO COMBAT MARITIME UAV & USV THREATS



Sea Warden is a naval-based defence system against unmanned aerial and surface threats, based on our flagship Sky Warden ground-based counter-UAV product. Uncrewed air and surface threats are increasing, posing a threat both to naval and merchant shipping, and to critical offshore infrastructure. Sea Warden provides a cost-effective, proportionate defensive system which is optimised for the naval environment and leverages MBDA's expertise in the counter-UAV domain.

Sea Warden is a modular system capable of integrating and exploiting a wide range of sensors and effectors in order to provide a robust and timely response to UAV and USV threats. The modularity and scalability enable it to be offered as a standalone system or as an integrated component of an overall combat system. Sea Warden's flexible interface enables it to be adapted to both naval shipping and maritime offshore platforms, protecting them from aerial or surface uncrewed threats.

Operational features

Sea Warden manages the full C-UAV and C-USV kill chain from detection to neutralisation. It has been specifically designed with an open architecture that enables it to be configured to meet specific customer requirements – whether integrated into ships' combat systems, or as a standalone capability with dedicated console. It can also accommodate customer choices of sensors and effectors, ensuring commonality with existing inventory and optimising training and logistics.

Operational advantages

- Neutralisation of all types of Class 1 & 2 UAV and USV threats.
- High performance Command and Control (C2) artificial intelligence (AI) module for robust air and surface picture management and engagement decision support.
- Multi-mission capability in all situations: harbour, at anchor, in restricted waters or on the high seas.
- Able to integrate and manage a large panel of potential sensors and effectors.
- Available in both standalone and integrated combat system versions for all type of surface combatants, either as new build or retrofit.
- Modular, scalable, and evolvable system. Will use the naval vessel's existing sensors and effectors as required.
- Tactical data link enables integration to a wider defence network (JREAP-C or national).



Modularity as core feature

The threat set and rules of engagement experienced during counter UAV/USV missions are extremely wide. By leveraging its modular design, Sea Warden can exploit a wide range of sensors and effectors to optimise the C-UAV and C-USV kill chain. The system is also able to support existing combat system equipment such as radars and weapons, and to integrate with platform level TEWA through the Combat Management System (CMS). Where necessary, Sea Warden can integrate additional sensors and effectors to complete the platform baseline.

Key attributes

- Multi-sensor/multi-effector modular system designed to protect high value assets, for platform self defence or area defence.
- Flexible configuration tailored to any maritime platform and mission.
- UAV/USV threat evaluation and classification provides clear situational awareness picture to the operator.
 - Gathers measurements from all air and surface sensors connected to the Sea Warden system.
 - Including data from the naval platform sensors if available.
 - Efficient filtering with low false alarm rate, thanks to AI algorithms at the core of the Sea Warden C2.
 - Smart HMI providing ease of operation, and low training burden.
- AI-based decision aid software for engagement management and weapon assignment.
- Tactical data link to enable integration within an extended air and surface defence structure.

Flexible system to cope with evolving missions

- Sea Warden can be tailored to Customers' needs to meet evolving UAV and USV threats, and to address specific complex operational scenarios.
- Sea Warden can be updated through life to integrate additional sensors and effectors – for example off board sensors and effectors carried by friendly UAV and USVs.
- Potential to evolve towards a true all-domain system with the integration of sensors and effectors for countering uncrewed underwater threats.

Characteristics

- Management of the complete kill chain from threat detection to neutralisation.
- Core architecture built around modularity.
- Sensors and effector types and numbers scalable to fit Customers' requirements.
- Customisable architecture to enable integration with legacy systems.

